



Proponent's Environmental Assessment (PEA) Checklist for Underground Gas Storage Facilities

TABLE OF CONTENTS

Executive Summary

Cover Sheet

Table of Contents

Executive Summary: PEA Summary

Organization of the PEA

Chapter 1: Purpose and Need

- 1.1 Purpose and Need of the Proposed Project
- 1.2 Purpose and Need for California Natural Gas/Energy Industry
 - 1.2.1 Background
 - 1.2.2 Related Storage Facilities
 - 1.2.3 Project Application

Chapter 2: Project Details

- 2.1 Project Background
- 2.2 Project Ownership
- 2.3 Site Description
 - 2.3.1 Location
 - 2.3.2 Land Uses and Environmental Setting
 - 2.3.3 Formation Information
- 2.4 Existing Facilities
 - 2.4.1 History of the Oil/Gas Field
 - 2.4.2 Underground Natural Gas Field
 - 2.4.3 Reservoir Development
- 2.5 Existing Operations (if an expansion of existing storage)
 - 2.5.1 Gas Injection Operations (if field expansion)
 - 2.5.2 Withdrawal Operations
 - 2.5.3 Produced Water and other associated products
 - 2.5.4 Cushion Gas Injection
- 2.6 Project Components
 - Well-head Site(s)*

- Compressor Station*
- Pipelines and Interconnection with Existing Facilities*
- Remote Facilities (Metering/Telemetry/Control)*
- Hazardous Materials Use and Storage*
- Electric Transmission Lines and Other Utilities*
- 2.7 Facility and Route Selection and Evaluation Process
- 2.8 Production Information
- 2.9 Reservoir Information

Chapter 2: Project Description (continued)

- 2.10 Project Land Requirements
- 2.11 Right-of-Way Requirements
- 2.12 Construction
 - 2.12.1 Staging and Access
 - 2.12.2 Construction Schedule, Work Force, and Equipment
 - 2.12.2.1 Construction Work Force
 - 2.12.3 Construction Method
 - 2.12.3.1 Clearing and Grading
 - 2.12.3.2 Erosion and Sediment Control and Pollution Prevention
 - 2.12.3.3 Construction Components
 - Well Pad/Drilling
 - Gas Pipeline Installation and Isolation
 - Compressor Station
 - ROW Isolation
 - Associated Pipelines
 - Remote Facility Site – Metering, Telemetry, Control
 - Gas Processing
 - Interconnections
 - Access Roads
 - ROW Restoration, Cleanup, and Post-Construction Restoration
- 2.13 Operation and Maintenance
- 2.14 Future Plans
- 2.15 Regulatory Requirements
 - 2.15.1 Federal Regulations
 - 2.15.2 State Regulations
 - 2.15.3 Local Requirements
 - 2.15.4 Permit Requirements

Chapter 3: Environmental Setting

Chapter 4 Environmental Impact Assessment

- 4.1 Aesthetics
- 4.2 Agricultural Resources
- 4.3 Air Quality
- 4.4 Biological Resources
- 4.5 Cultural Resources
- 4.6 Geology, Soils, and Seismicity

- 4.7 Hazards and Hazardous Materials
- 4.8 Hydrology and Water Quality
- 4.9 Land Use and Planning
- 4.10 Mineral Resources
- 4.11 Noise
- 4.12 Population and Housing
- 4.13 Public Services
- 4.14 Recreation
- 4.15 Transportation and Traffic
- 4.16 Utilities and Services Systems
- 4.17 Cumulative Analysis
- 4.18 Growth-Inducing Impacts, if Significant

Chapter 5: Detailed Discussion of Significant Impacts

- 5.1 Mitigation Measures to Minimize Significant Effects
- 5.2 Growth-Inducing Impacts
- 5.3 Suggested Applicant Proposed Measures to address GHG Emissions

Chapter 6: Alternatives

- 6.1 Factors used in selecting Alternatives
- 6.2 Alternatives Evaluated in this PEA

List of Tables

- Table ES-1 Summary Impacts and Mitigation Measures
 - Table ES-1 Summary of Alternatives
 - Table 2.8.2-1 Major Construction Phases and Workforce
 - Table 2.8.2-2 Construction Schedule
 - Table 2.8.2-3 Construction Activity, Equipment and Workforce
 - Table 2.8.2-4 Construction Equipment Type and Use
 - Table 2.8.4-1 Construction Access Roads – Type, Description, Acreage
-

PEA CHECKLIST FOR UNDERGROUND GAS STORAGE FACILITIES

Executive Summary

- ☐ Typically from two to ten pages in length (without tables) depending on complexity of the project and the number and significance of the projects impacts.
- ☐ PEA Executive summary should include, but is not limited to, the following:
 - The primary project components (well-head, compressor station, pipeline connections, etc)
 - The major areas of impact (e.g., air, water, visual, etc.);
 - the major conclusions of the PEA;
 - any areas of controversy;
 - any major issues that must be resolved including the choice among reasonably feasible alternatives and mitigation measures, if any,
 - a list of other state, local and federal permits required; and whether any of these agencies will be resource agencies;
 - a description of interagency coordination, if any; and
 - a description of public outreach efforts, if any.
- ☐ The PEA Executive Summary should also include:
 - PEA organization and one line description of each chapter
 - A summary table of impacts and mitigation measures
 - A summary table of alternatives

PEA CHECKLIST FOR UNDERGROUND GAS STORAGE FACILITIES

Chapter 1: Purpose and Need

This section lists the information necessary under CEQA to describe the objectives and purpose for the Proposed Project, the organization of the PEA and a facility overview.

1.1 Purpose and Need of the Project

- ☐ Generally not more than two pages in length, except where significant or potentially significant project impacts have been identified. Explanation of the objective(s) and/or Purpose and Need for implementing the Proposed Project. Analysis of project objectives, purpose and need must be sufficiently detailed to permit the Commission to independently evaluate the project need and benefits in order to accurately consider them in light of the potential environmental impacts.
- ☐ Describe ways in which the facility has fit/will fit into the dynamics of the natural gas industry and energy demand in California.
- ☐ Describe the need for gas in the particular locality, the projected use of the gas and required storage capacity.
- ☐ Explain why attainment of these objectives is necessary or desirable. Such analysis must be sufficiently detailed to inform the Commission in its independent formulation of project objectives, which will aid any appropriate CEQA alternatives screening process. Include the project's buffer gas requirement and quantify the degree to which this requirement offsets the economic/energy efficiency gains contributed by the project.

1.2 Background

1.2.1 Background

This section will also provide the background on the natural gas formation contributing to the existing natural gas facility.

1.2.2 Related Storage Facilities

1.2.3 Project Application

Describe how existing storage facilities will work in conjunction with the proposed project. Describe the purchasing process (injection, etc) and transportation arrangements this facility will have with its customers.

PEA CHECKLIST FOR UNDERGROUND GAS STORAGE FACILITIES

Chapter 2: Project Details

2.1 Project Description

- ☐ Describe the whole of the Proposed Project. Is it an upgrade, an expansion, a new field, new wells or pipelines, etc.
- ☐ Describe how the Proposed Project fits into the regional gas system, including interconnection to the regional transmission system, existing storage, and associated pipeline requirements.
- ☐ Describe all reasonably foreseeable future phases, or other reasonably foreseeable consequences of the Proposed Project.
- ☐ Provide storage capacity or storage capacity increase in billion cubic feet (bcf). If the project does not increase capacity, state it.
- ☐ Provide GIS (or equivalent) data layers for the Proposed Project preliminary engineering including estimated locations of all physical components of the Proposed Project as well as those related to construction. For physical components, this could include but is not limited to the existing components (e.g., ROWs, facility locations, wells, pipelines, transmission lines, etc.). For elements related to construction include: proposed or likely laydown areas, work areas, access roads (e.g., temporary, permanent, existing, etc.), areas where special construction methods may need to be employed, areas where vegetation removal may occur, areas to be heavily graded, etc. More details about this type of information are provided below.

2.2 Project Ownership

- ☐ Storage facility
- ☐ Wells
- ☐ Pipelines
- ☐ Transmission line (if any)
- ☐ Compressor Station

2.3 Site Description

2.3.1 Location

- ☐ Geographical Location: County, City (provide project location map(s)). Show location on a detailed topographic and regional map.

2.3.2 Land Uses and Environmental Setting

- ☐ General Description of Land Uses and environmental settings within and adjacent to the location of the project facilities (e.g., residential, commercial, agricultural, recreation, traverses vineyards, farms, open space, number of stream crossings, etc.).
- ☐ Describe if the Proposed Project is located within an existing property owned by the Applicant, traverses existing rights of way (ROW) or requires new ROW. Give the approximate area of the property or the length of the project that is in an existing ROW or which requires new ROWs.

2.3.3 Formation Information

- ☐ Depth of new or existing wells
- ☐ Description of overlying stratigraphy, especially caps
- ☐ Description of production, injection, and intervening strata
- ☐ Types of Rock
- ☐ Description of types of rocks in formation, including permeability, fractures
- ☐ Thickness of Strata
- ☐ Provide graphic and/or table showing formation thicknesses
- ☐ Identify and describe any potential gas migration pathways, such as faults, permeable contacts, abandoned wells, underground water or other pipelines

2.4 Existing Facilities

- Provide overview of existing facilities.

2.4.1 History of the Oil/Gas Field

- ☐ First well drilling, production history, abandonment procedures, inspections, etc.

2.4.2 Underground Natural Gas Field

- ☐ Describe the production zones, including depth, types of formations, characteristics of field
- ☐ Provide cross section of the geologic formations and structures.

2.4.3 Reservoir Development

- ☐ Describe storage capacity and limiting factors, such as injection or withdrawal criteria.
- ☐ Describe cushion gas requirements.
- ☐ Provide simulation studies that were used to predict the reservoir pressure response under gas injection and withdrawal operations.

2.5 Existing Operations

- Include a map showing all existing facilities

2.5.1 Gas Injection Operations (if field expansion)

- ☐ Describe any existing injection wells—size, depth, formation the well is completed in (injection formation), injection pressure and rates

2.5.2 Withdrawal Operations

- ☐ Describe any existing withdrawal or production wells—size, depth, formation the well is completed in (production formation), pumping information and withdrawal rates

2.5.3 Produced Water and other associated products

- ☐ Describe methods for treating produced water
- ☐ Describe methods for treating other associated products, if any

2.5.4 Cushion Gas Injection

- ☐ Describe any cushion gas injection—formation the well is completed in (cushion gas formation), injection information

2.6 Project Components

Well-Head Site(s)

- ☐ Existing
 - Describe location, depth, size, completion information
- ☐ Abandoned Wells
 - Describe location, depth, size, completion information
- ☐ Proposed Production and Injection wells
 - Describe location, depth, size, completion information
- ☐ Monitoring or Test Wells

Compressor Station

- ☐ Describe the compressor station, if needed on the new or existing pipeline

Pipelines and Interconnections with Existing Facilities

- ☐ Number
- ☐ Size
- ☐ Route
 - Below Ground installations
 - Above Ground installations

Remote Facilities

- ☐ Metering
- ☐ Telemetry
- ☐ Control

Hazardous Materials Use and Storage

Electric Transmission and Other Utilities/Facilities

- ☐ Administrative Office

- ☐ Non-hazardous Chemical Storage

2.7 Facility Route Selection and Evaluation Process

- ☐ Describe how the route was determined, what routes were considered and rejected, what sensitive resources were avoided, what factors make this the best route

2.8 Production Information

- ☐ Production and Injection Pressures
- ☐ Production and Injection depths
- ☐ Production and Injection rates
- ☐ Production Injection Cycles
 - Twenty Four Hour
 - Weekly
 - Seasonal

2.9 Reservoir Information

- ☐ Storage Capacity
- ☐ Structure and Cushion Gas requirements

2.10 Project Land Requirements

- ☐ Well Pad Site
- ☐ Loop Pipeline
- ☐ Remote Facility Site
- ☐ Connection Pipeline and Interconnect
- ☐ Any other facilities

2.11 Right-of-Way Requirements

- ☐ Gas Pipeline
 - Below ground installation
 - Above ground installation
- ☐ Describe the location, ownership, and width. Would existing ROW be used or would new ROW be required?
- ☐ If new ROW is required, describe how it would be acquired and approximately how much would be required (length and width).
- ☐ List properties likely to require acquisition.

2.12 Construction Staging and Access

- ☐ Well Pad Site
- ☐ Gas Pipeline
- ☐ Compressor Station
- ☐ Interconnect
- ☐ Remote Facility

2.12.1 Construction Staging

- For all Projects
- ☐ Where would the main staging area(s) likely be located?

- ☐ Approximately how large would the main staging area(s) be?
- ☐ Describe any site preparation required, if known, or generally describe what might be required (i.e., vegetation removal, new access road, installation of rock base, cut and fill) etc.).
- ☐ Describe what the staging area would be used for (i.e., material and equipment storage, field office, reporting location for workers, parking area for vehicles and equipment, etc.).
- ☐ Describe how the staging area would be secured, would a fence be installed? If so, describe the type and extent of the fencing.
- ☐ Describe how power to the site would be provided if required (i.e., tap into existing distribution, use of on-site generators, etc.)
- ☐ Describe any grading activities and/or slope stabilization issues

2.12. 2 Construction Schedule, Work Force, and Equipment

Table 2.12.2-1(Convert following to Gantt chart format)

Project Activity	Proposed Project (Month Year or Month Year to Month Year)
Permit To Construct decision adopted and effective	
Acquisition of required permits	
Right-of-way / property acquisition	
Final engineering completed	
Construction begins	
Project operational	
Clean up	

2.12.2.1 Construction Work Force

[Note: in the absence of project specific data, provide estimates based on past projects of a similar *size* and type.]

- ☐ Provide the estimated number of construction crew members.
- ☐ Describe the crew deployment, would crews work concurrently (i.e., multiple crews at different *sites*); would they be phased, etc.
- ☐ Describe the different types of activities to be undertaken during construction; the number of crew members for each activity i.e. trenching, grading, etc.; and number and types of equipment expected to be used for said activity. Include a written description of the activity. See examples below.

Table 2.12.2-2: Major Construction Phases and Workforce

Phase	Total Workforce	Nonlocal Workforce	Estimated Duration	Construction Year
Pipeline Construction	65	10	32 weeks	2003
Interconnect Facility	20	5	18 weeks	2003
Well Pad Expansion	20	0	4 weeks	2002
Well Drilling	32	12	16 weeks	2003
Remote Facility Expansion				
Site Preparation	20	10	4 weeks	2002
Civil	34	13	6 weeks	2002/03
Mechanical	42	20	28 weeks	2003
Electrical/ Instrumentation	45	5	34 weeks	2003
Testing/Commissioning	15	0	3 weeks	2004
Phase	Total Workforce	Nonlocal Workforce	Estimated Duration	Construction Year
Clean-up/Restoration	10	5	14 weeks	2004
PROJECT TOTALS	303	80		

□

**Table 2.12.2-3: CONSTRUCTION
ESTIMATED PERSONNEL AND EQUIPMENT**

Activity	People	Quantity of Equipment
Survey	3	1 pickup truck
Access Road Construction	2-3	1 bulldozer (D-8 Cat)
		1 motor grader
		1 pickup truck
		1 water truck (for construction)
Auger Holes, Direct Embed Poles	5	1 <i>hole</i> digger
		1 backhoe or bucket excavator
		1 water truck
		1 pickup truck
		1 line truck
Material Haul	3	1 Tractor Trailer
		2 yard and field cranes or line trucks
		1 fork lift
		1 truck (2 ton)
		1 pickup truck
		1 bucket buck
		1 line truck

Well Installation	8	
		3 diesel generators
		1 Crane
		1 line truck
		3 pick up trucks
		1 Truck
Right-of-way -ration and Cleanup	4	1 truck
		1 motorgrader
		1 pickup truck
		1 water truck

- ☐ Provide a list of the types of equipment expected to be used during construction of the Proposed Project as well as a brief description of the use of the equipment. See example below.

Table 2.12.2-4: EQUIPMENT EXPECTED TO BE USED DURING PROJECT CONSTRUCTION

Type of Equipment	Use
Truck	Lift and Transport workers
Crane	Erect pole structure, lift and transport heavy construction items
Backhoe or Bucket Excavator	Transport personnel, tools, and materials
Crew-Cab/Pick-ups	Pull pole trailer for multi-pole loads
Diesel Tractor	Haul material
Fork Lift	Road Construction (staging, pull sites)
Grooming/Grading Equipment ---dozer ---water truck ---motor grader	----- Move/compact soils ----- compaction and dust control ----- to properly pitch road for run-off Excavate holes
Drill Rig	Compressors, trailers, tanks, install pole/conductor
Line Truck	
Mobile Office	Supervision and clerical office
Pullers, Reel Dolly	Install conductor
Tensioned	Install and move conductor
Tractor trailer	Haul Materials
Two-ton truck	Haul Materials

2.12.3 Construction Methods

2.12.3.1 Clearing and Grading

- ☐ Vegetation Clearance [Note: specific amounts and types of vegetation removed may not be known until plant surveys, field reviews and project engineering are complete. However, the applicant is expected to have a reasonable estimate of the vegetation clearance required for each project based on established data available for each project area.]
- ☐ Describe what types of vegetation clearing may be required (e.g., tree removal, brush removal, flammable fuels removal) and why (e.g., to provide access, etc.).
- ☐ Identify the preliminary location and provide an approximate area of disturbance in the GIS database for each type of vegetation removal.
- ☐ Describe how each type of vegetation removal would be accomplished.
- ☐ Describe the types and approximate number and size of trees that may need to be removed. Describe the type of equipment typically used.

2.12.3.2 Erosion and Sediment Control and Pollution Prevention

- ☐ Describe the areas of soil disturbance including estimated total areas, and associated terrain type and slope. List all known permits required. For project sites of less than one acre, outline the best management practices (BMPs) that would be implemented to manage surface runoff. Things to consider include, but are not limited to, the following:
 - Erosion and Sedimentation BMP's;
 - Vegetation Removal and Restoration; and/or,
 - Hazardous Waste and Spill Prevention Plans.
- ☐ Describe any grading activities and/or slope stabilization issues.
- ☐ Describe how construction waste (i.e., refuse, spoils, trash, oil, fuels, etc.) would be disposed.

2.12.3.3 Construction Components

Well Pad Construction

- ☐ Describe construction methods, amount of cut and fill, source of fill (if imported).
- ☐ List construction equipment and schedule for use

Well Drilling

- ☐ Describe type of drill rig (diesel or electric), depth of well, drilling schedule, onsite equipment.
- ☐ List estimated use of drilling muds and other materials, types and quantities.

Compressor Station

Gas Pipeline Installation and Isolation

- Trenching and Trenchless Techniques, Stringing, Backfilling, Hydrostatic Testing
- ☐ **Trenching**
 - ☐ Describe the approximate dimensions of the trench (e.g., depth, width).
 - ☐ Describe the methodology of making the trench (e.g., saw cutter to cut the pavement, back hoe to remove, etc.).

- ☐ Provide the total approximate cubic yardage of material to & removed from the trench, the amount to be used as backfill and the amount to subsequently be removed disposed of offsite.
- ☐ Provide off-site disposal location, if known, or describe possible option(s).
- ☐ If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).
- ☐ Describe if dewatering would be anticipated, if so, how the bench would be dewatered, what are the anticipated flows of the water, would there be treatment, and how would the water be disposed.
 - Describe *the* process for testing excavated soil or groundwater for the presence of preexisting environmental contaminants that could be exposed as a result of trenching operations.
 - If a preexisting hazardous waste were encountered, describe the process of removal and disposal.
 - Describe any standard BMPs that would be implemented.
- ☐ **Trenchless Techniques:** Microtunnel, Bore and Jack, Horizontal Directional Drilling
 - ☐ Provide the approximate location of the sending and receiving pits.
 - ☐ Provide the length, width and depth of the sending and receiving pits.
 - ☐ Describe the methodology of excavating and shoring the pits.
 - ☐ Describe the methodology of the trenchless technique.
 - ☐ Provide the total cubic yardage of material to be removed from the pits, the amount to be used as backfill and the amount to subsequently be removed/disposed of off-site.
 - ☐ Describe process for safe handling of drilling mud and bore lubricants.
 - ☐ Describe process for detecting and avoiding "fracturing-out" during HDD operations.
 - ☐ Describe process for avoiding contact between drilling mud/lubricants and *stream* beds.
 - ☐ If engineered fill would be used as backfill, provide information as to the type of engineered backfill and the amount that would be typically used (e.g., the top two feet would be filled with thermal-select backfill).
 - ☐ Describe if dewatering would be anticipated, if so, how the pit would be dewatered, what are the anticipated flows of the water, would *there* be treatment, and how would the water be disposed.
 - ☐ Provide the number of and describe stream crossings that will occur during trenching, the method of trenching through stream crossings, and the process for avoiding impacts to streams required for pipeline construction.
 - ☐ Describe the process for testing excavated soil or groundwater for the presence of preexisting environmental contaminants.
 - ☐ If a preexisting hazardous waste were encountered, describe the process of removal and disposal.
 - ☐ Describe any grading activities and/or slope stabilization issues.
 - ☐ Describe any standard BMPs that would be implemented.
- ☐ **Stringing**
 - ☐ Describe method for pipe stringing.

- ☐ Pipe Installation
- ☐ Describe methods for pipeline installation, including clearing, grading, trenching depths, and widths.
- ☐ **Backfilling**
 - ☐ Describe methods for backfilling, including stockpiling topsoil and timing of open trenches.
- ☐ **Hydrostatic Testing**
 - ☐ Describe hydrostatic testing process including pressures, timing, source of flushing water, discharge of water.
 - ☐ Describe energy dissipation basin, size of segments to be tested.
 - ☐ Describe pig launching locations, if applicable.

Associated Pipelines

- ☐ Describe construction methods, locations, right-of-way width, additional areas required for directional drilling, stream crossing, equipment required for installation.

Right-of-way Isolation

- ☐ Describe methods to isolate the ROW if necessary, including culverts and water crossings.

Remote Facility Site

- ☐ Describe the facilities and the equipment used for operation of the facility.
 - Metering,
 - Telemetry
 - Control

Interconnections

Access Roads

- ☐ Describe the types of roads that would be used and or would need to be created to implement the Proposed Project. See table below as an example of information required. Road types may include, but are not limited to: new permanent road; new temporary road; existing road that would have permanent improvements; existing road that would have temporary improvements, existing paved road; existing dirt/gravel road, and overland access.
- ☐ For road types that require preparation, describe the methods and equipment that would be used.
- ☐ Identify approximate location of all access roads (by type) in the GIS database. Summary of Access Road Requirements.
- ☐ Describe any grading activities and/or slope stabilization issues.

Access Roads

Type of Road	Description	Area Proposed Project
Existing Dirt Road	Typically double track. <i>May</i> have been graded previously. No other preparation required, although a few sections may need to be re-	----- acres

	graded and crushed rock applied in very limited areas for traction.	
New Permanent	Would be xx feet wide, bladed. No other preparation required although crushed rock may need to be applied in very limited areas for traction.	----- acres
Overland Access	No preparation required. Typically grassy areas that are relatively flat. No restoration would be necessary.	----- acres

ROW Restoration, Cleanup, and Post-Construction Restoration

- ☐ Describe methods for restoring excavated ROW, re-vegetation, etc.
- ☐ Describe how cleanup and post-construction restoration would be performed (i.e., personnel, equipment, and methods). Things to consider include, but are not limited to, restoration of the following:
 - Natural drainage patterns
 - Wetlands;
 - Vegetation; and
 - Other disturbed areas (i.e. staging areas, access roads, etc.).

2.13 Operation and Maintenance

- ☐ Describe the general system monitoring and control (i.e., use of standard monitoring protection equipment, pressure sensors, automatic shut-off valves, etc.).
 - Describe the general maintenance program of the Proposed Project, include items such as: Timing of the inspections (i.e., monthly, every July, as needed);
 - Type of inspection (i.e., aerial inspection, ground inspection); and
 - Description of how the inspection would be implemented. Things to consider, who/how many crew members; how would they access the site (walk to site, vehicle, ATV); would new access be required; would restoration be required, etc.
- ☐ If additional full time staff would be required for operation and/or maintenance, provide the number and for what purpose.
- ☐ General system monitoring and control
- ☐ Well pad site monitoring and control
- ☐ Remote Facility Site Monitoring and Control Systems
- ☐ Control Room Technology
- ☐ Equipment Operation
- ☐ Facility Inspection and Survey
 - Pipeline Inspections

- Well Pad Site Inspections
- Remote Facility Site Inspections
- Number of inspections, number of trips, facilities inspected.
- ☐ Maintenance and Repair Procedures
- ☐ Scheduled Site Maintenance
- ☐ Parts and Materials
- ☐ Ongoing General Maintenance
 - Vegetation Management
 - Access Road maintenance
 - Electric Test System Installation
 - Cathodic Protection
 - Pipeline Replacement
 - Well Work-over
 - Gas Storage
- ☐ Pigging Activities
- ☐ Gas Storage
- ☐ Wells
- ☐ Pipeline

2.14 Future Plants

- ☐ Abandonment
- ☐ Expansion

2.15 Regulatory Requirements

2.15.1 Federal Regulations

- ☐ U.S. Department of Transportation – Office of Pipeline Safety
- ☐ U.S. Environmental Protection Agency
- ☐ Resource Conservation and Recovery Act (RCRA)
- ☐ Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

2.15.2 State Regulations

- ☐ California Division of Oil, Gas and Geothermal Resources (DOGGR)
- ☐ California Regional Water Quality Control Board (RWQCB) – Regional National Pollutant Discharge Elimination System General Industrial Storm Water Discharge Permit
- ☐ California Environmental Protection Agency – Department of Toxic Substances Control Hazardous Materials Release Response Plan and Inventory Act of 1985
- ☐ Hazardous Waste Control Act
- ☐ California State lands Commission (SLC)
- ☐ Office of State Fire Marshall

2.15.3 Local Regulations

- ☐ Cities and Counties

2.15.4 Permitting Requirements of Applicable Regulated agencies

- ☐ Federal, state, and local

PEA CHECKLIST FOR UNDERGROUND GAS STORAGE FACILITIES

Chapter 3: Environmental Setting

Note: The discussion of Environmental Setting may be combined within each resource area in the Environmental Assessment Summary.

- ☐ For each resource area discussion, the PEA must include the following:
 - A description of the physical environment in the vicinity of the project (e.g. topography, land use patterns, biological environment, etc.)
 - local environment (site-specific)
 - regional environment
 - A description of the regulatory environment/context
 - Federal
 - State
 - Local
- ☐ Detailed descriptions should be limited to those resource areas which may be subject to a potentially significant impact.

PEA CHECKLIST FOR UNDERGROUND GAS STORAGE FACILITIES

Chapter 4: Environmental Impact Assessment Summary

All impacts identified as significant or potentially significant must be explained in detail in accord with Chapter 5 criteria

4.1 Aesthetics

- ☐ Provide visual simulations of prominent public view locations, including scenic highways to demonstrate the before and after project implementation. Additional simulations of affected private view locations are highly recommended.

4.2 Agriculture Resources

- ☐ Identify the types of agricultural resources affected.

4.3 Air Quality

- ☐ Provide supporting calculations / spreadsheets / technical reports that support construction and operation emission estimates in the PEA.
- ☐ Provide documentation of the location and types of sensitive receptors that could be impacted by the project (e.g., schools, hospitals, houses, etc.). Critical distances to receptors is dependent on type of construction activity.
- ☐ Quantify project greenhouse gas (GHG) emissions.
- ☐ The assessment of air quality impacts must be consistent with the area and the conditions of the local environment described in PEA Chapter 3 as well as with the PEA's analysis of impacts during construction, including traffic and all other emissions.

4.4 Biological Resources

In addition to an impacts analysis:

- ☐ Provide location of the wetland area. .
- ☐ Provide a copy of special status surveys for wildlife, botanical and aquatic species, as applicable. Any GIS data documenting locations of special-status species should be provided.

4.5 Cultural Resources

In addition to an Impacts Analysis:

- ☐ Cultural Resources Report documenting a cultural resources investigation of the Proposed Project. This report should include a literature search, pedestrian survey, and Native American consultation.

- ☐ Describe the potential for encountering human remains or grave goods during the trenching or any other phase of construction.
- ☐ Describe measures that would be taken in the result of undiscovered artifacts or human remains.
- ☐ Provide a copy of the records found in the literature search.
- ☐ Provide a copy of all letters and documentation of Native American consultation.

4.6 Geology, Soils, and Seismic Potential

In addition to an impacts analysis:

- ☐ Provide a copy of geotechnical investigation if completed, including known and potential geologic hazards such as ground shaking, subsidence, liquefaction, etc.

4.7 Hazards and Hazardous Materials [Note: reference and list the documents that apply]

- ☐ Describe potential for and effects of gas migration through natural and manmade pathways.
- ☐ Describe mitigation measures for avoiding gas emissions at the surface from gas migration pathways.
- ☐ Describe mitigation measures for avoiding emissions of mercaptin and/or other odorizing agents.

In addition to an impacts analysis:

- ☐ Environmental Data Resources report.
- ☐ Hazardous Substance Control and Emergency Response Plan.
- ☐ Health and Safety Plan.
- ☐ Worker Environmental Awareness Program (*WEAP*).
- ☐ Describe what chemicals would be used during construction and operation of the Proposed Project. For example: fuels, etc. for construction, naphthalene to treat wood poles before installation.

In addition to an impacts analysis:

- ☐ Environmental Data Resources report.
- ☐ Hazardous Substance Control and Emergency Response Plan.
- ☐ Health and Safety Plan, including a plan for addressing gas leaks, fires, etc. Identify sensitive receptors, methods of evacuation, protection measures.
- ☐ Health Risk Assessment, including risk from potential gas leaks, fires, etc. Identify sensitive receptors that would be affected and potential impacts on them if there is a gas release.
- ☐ Worker Environmental Awareness Program (*WEAP*).

- ☐ Describe what chemicals would be used during construction and operation of the Proposed Project. For example: fuels, etc. for construction, naphthalene to treat wood poles before installation.

4.8 Hydrology and Water Quality

In addition to an impacts analysis:

- ☐ Describe impacts to groundwater quality including increased run-off due to construction of impermeable surfaces, etc.
- ☐ Describe impact to wetlands, particularly from directional boring
- ☐ Describe impacts to rivers and streams if a river or stream crossing is required.
- ☐ Describe impacts to surface water quality including the potential for accelerated soil erosion, downstream sedimentation, and reduced surface water quality.

4.9 Land Use and Planning

In addition to an impacts analysis, provide GIS data of all parcels within 300' of the Proposed Project with the following data: APN number, mailing address, and parcel's physical address.

4.10 Mineral Resources

Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.

4.11 Noise

Provide long term noise estimates for operational noise.

4.12 Population and Housing

Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.

4.13 Public Services

Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.

4.14 Recreation

Data needs already specified under Chapter 3 would generally meet the data needs for this resource area.

4.15 Transportation and Traffic *[Note: the traffic impact assessments should be based on likely or probable routes.]*

- ☐ Discuss traffic impacts resulting from construction of the Proposed Project including ongoing maintenance operations.
- ☐ Provide a preliminary description of the traffic management plan that would be implemented during construction of the Proposed Project.

4.16 Utilities and Services Systems

- ☐ Describe the existing utilities in the area, including the subsurface lines that could be affected by pipeline construction and excavation.
- ☐ Identify the sources of water for hydrostatic testing.
- ☐ Describe method of disposing of testing water.

4.17 Cumulative Analysis

- ☐ Provide a list of projects (i.e., past, present and reasonably foreseeable future projects) within the Project Area in which that the applicant is involved.
- ☐ Provide a list of projects that have the potential to be proximate in space and time to the Proposed Project. Agencies to be contacted including, but are not limited to: the local planning agency, Caltrans, etc.

4.18 Growth-Inducing Impacts, If Significant

- ☐ Provide information on the Proposed Project's growth inducing impacts, if any. The information should include, but is not necessarily limited, to the following:
 - Any economic or population growth, in the surrounding environment that will directly or indirectly, result from the Proposed Project.
 - Any increase in population that could further tax existing community service facilities (i.e., schools, hospitals, fire, police, etc.), that will directly or indirectly result from the Proposed Project.
 - Any obstacles to population growth that the Proposed Project would remove.
 - Any other activities, directly or indirectly encouraged or facilitated by the Proposed Project that would cause population growth that could significantly affect the environment, either individually or cumulatively.

PEA CHECKLIST FOR UNDERGROUND GAS STORAGE FACILITIES

Chapter 5: Detailed Discussion of Significant Impacts

5.1 Mitigation Measures

- Please describe measures that will be used to minimize significant impacts described in Chapter 4. Also include measures to mitigate inefficient and unnecessary consumption of energy (e.g. – buffer gas requirements that offset the economic/energy efficiency gains contributed by this project). Include, if they exist, other measures that are not included but could reasonably be expected to reduce adverse impacts.
- Identify the acceptable levels to which such impacts will be reduced and the basis upon which such level were identified (see CEQA Information and Criteria List, Section 14A for more details).
- Please provide in this section a treatment plan in accordance with all state and federal laws for addressing unanticipated human remains or grave goods that may be encountered during trenching for pipelines.

5.2 Growth-Inducing Impacts

5.3 Suggested Applicant Proposed Measures to address GHG Emissions

- ☐ The following are suggested methods to reduce project GHG emissions. These methods were developed with feedback from previous applicants. Applicants can and are encouraged to propose other GHG-reducing mitigations. On-site and/or proximate mitigation measures are encouraged. Off-site mitigations are considered ‘mitigations’ only when they are performed within California. This list will be updated periodically as better information and performance are obtained.

1. If suitable park-and-ride facilities are available in the Project vicinity, construction workers will be encouraged to carpool to the job site to the extent feasible. The ability to develop an effective carpool program for the Proposed Project would depend upon the proximity of carpool facilities to the job site, the geographical commute departure points of construction workers, and the extent to which carpooling would not adversely affect worker show-up time and the Project's construction schedule.

2. To the extent feasible, unnecessary construction vehicle and idling time will be minimized. The ability to limit construction vehicle idling time is dependent upon the sequence of construction activities and when and where vehicles are needed or staged. Certain vehicles, such as large diesel powered vehicles, have extended warm-up times following start-up that limit their availability for use following startup. Where such diesel powered vehicles are required for repetitive construction tasks, these vehicles may require more idling time. The Proposed Project will apply a “common sense” approach to vehicle use; if a vehicle is not required for use immediately or continuously for construction activities, its engine will be shut off. Construction foremen will include briefings to crews on vehicle

use as part of pre-construction conferences. Those briefings will include discussion of a “common sense” approach to vehicle use.

3. Use low-emission construction equipment. Maintain construction equipment per manufacturing specifications and use low-emission equipment described here. All off-road construction diesel engines not registered under the CARB Statewide Portable Equipment Registration Program shall meet at a minimum the Tier 2 California Emission Standards for Off-Road Compression-Ignition Engines as specified in California Code of Regulations, Title 13, Sec. 2423(b)(1).

4. Diesel Anti-Idling: In July 2004, the CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling.

5. Alternative Fuels: CARB would develop regulations to require the use of 1 to 4 percent biodiesel displacement of California diesel fuel.

6. Alternative Fuels: Ethanol, increased use of ethanol fuel

7. Green Buildings Initiative

8. Facility-wide energy efficiency audit.

9. Complete greenhouse gas emissions audit. The audit will include a review of the greenhouse gases emitted from those facilities (substations), including carbon dioxide, methane, CFC and HFC compounds, (SF6).

10. There is an EPA approved SF6 emissions protocol.
<http://www.epa.gov/electricpower-sf6/resources/index.html#three>

11. SF6 program wide inventory. For substations keep inventory of leakage rates.

12. Increase replacement of breakers once leakage rates exceed 1% within 30 days of detection.

13. Increased investment in current programs that can be verified as being in addition to what the utility is already doing.

14. The SF6 Emission Reduction Partnership for the Electric Power Systems was launched in 1999 and currently includes 57 electric utilities and local governments across the U.S. SF6 is used by this industry in a variety of applications, including that of dielectric insulating material in electrical transmission and distribution equipment such as circuit breakers. Electric power systems that join the Partnership must, within 18 months, establish an emission reduction goal reflecting technically and economically feasible opportunities within their company. They also agree to, within the constraints of economic and technical feasibility, estimate their emissions of SF6, establish a strategy for replacing older, leakier pieces of equipment, implement SF6 recycling, establish and apply proper handling techniques, and report annual emissions to EPA. EPA works as a clearinghouse for technical information, works to obtain commitments

from all electric power system operators and will be sponsoring an international conference in 2000 on SF6 emission reductions.

15. Quantify what comes into the system and track programmatically SF6.
16. Applicant can propose other GHG reducing mitigations.

Chapter 6: Alternatives

- ☐ In accordance with the CPUC CEQA Information and Criteria List, describe all reasonable alternatives to the project or the location of the project, and the factors used in their selection.
 - Describe alternative reservoirs considered for gas storage, including location of field, potential storage, suction gas requirements and location to regional pipelines, roads, and utilities.
 - Describe alternative well-head sites
 - Describe alternative drilling sites
 - Describe alternative pipeline alignments
 - Describe alternative compressor station sites
- ☐ Describe the No Project Alternative